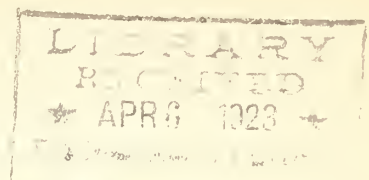


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QUESTIONS RELATIVE TO THE BARBERRY ERADICATION  
CAMPAIGN THAT EVERY FIELD MAN SHOULD BE ABLE TO  
ANSWER FULLY

IDENTIFICATION OF BARBERRIES

1. (a) Draw a sketch of leaves, branches, flower clusters and berries showing the distinguishing characteristics of (Berberis vulgaris).
- (b) Draw a sketch of leaves, branches, flower clusters and berries showing the distinguishing characteristics of (Berberis thunbergii).
2. What would you call a barberry bush which had spines both in ones and threes, smooth-edged leaves, bunches of berries intermediate between *B. thunbergii* and *B. vulgaris*, and erect habit like *B. vulgaris*?

Suggest greenhouse tests that could be made to verify your decision.

3. What procedure would you follow if you found what you thought was a hybrid barberry?

Would you rely on your own opinion as to its being a hybrid?

Would you condemn it?

4. Would you condemn a barberry which has been proved not to be susceptible but which hybridizes easily with *B. vulgaris*?
5. What would you do if *B. thunbergii* had clusters of three thorns?  
How would you classify it?
6. How can you determine the age of a barberry bush?

STEM RUST

Casual Organism and Hosts

7. What organism causes stem rust? What is its classification?
8. Give in detail the life cycle of stem rust. Make detailed drawings.



9. (a) Give characters by which *Puccinia graminis* can be identified under field conditions.
- (b) Make drawings, give form and colors of pustules for all seasons of the year.
10. Is the rust on timothy the same as Black Stem Rust?  
Is it dependent upon the barberry?
11. (a) What is meant by a specialized (biologic) form?
- (b) How many specialized forms are there? Name common hosts for each.
- (c) Are these specialized forms subdivided, if so, which has the greater number of subdivisions?
12. (a) Name at least 10 hosts of stem rust.
- (b) Name some common grass hosts with their general distribution.
13. Where does stem rust apparently overwinter in the uredinial stage?
14. What is the danger of infection from the north or south in your State?
15. (a) Is there any possibility that stem rust may overwinter in the red or uredinial stage in your State?
- (b) If so, where and give in detail the conditions favorable.
16. (a) At what time of the year would you expect to find the first aecial or cluster-cup stage?
- (b) How long after the appearance of the aecial stage would you expect to find the first pustules on grains or grasses?
- (c) At about what date might you expect to find a general stem rust epidemic in an area free from *B. vulgaris*?
- (d) Does this depend upon locality or weather conditions or both?
17. Does *B. vulgaris* at any time during the season seem to cease to be a factor in continuing the spread of rust?
18. (a) Give the details for making a local epidemiology study?
- (b) Give the details for mapping the spread of rust from barberries.
19. (a) What are the two fundamental methods of control of stem rust?
- (b) Are both methods being used at the present time?



20. (a) Outline the weather conditions of a season which would be highly favorable for stem rust development.
- (b) Outline the weather conditions of a season which is unfavorable for rust development.
21. Explain how only parts of a grain field may be rusted, especially if these parts are not contiguous.

#### SURVEY FOR ERADICATION OF COMMON BARBERRIES

##### Original Survey

22. Give a detailed outline of the method of procedure when beginning the survey of a county.
23. Explain in detail how a farm-to-farm survey is made.
  - Should every house be visited and every property owner interviewed?
  - How carefully should the farmstead be inspected?
24. (a) What are the possibilities for the occurrence of barberries on the premises about an abandoned house?
- (b) Should an abandoned road or lane be explored?
25. Suppose common barberry bushes producing berries were found in a farmer's yard - where might you expect to find escaped bushes?
26. How far from mother bush and to what type of country are barberry seeds carried?
  - (a) What are the agencies contributing to the spread of barberries?
  - (b) Beneath what kinds of trees might you expect to find seedlings?
27. How long do you think the seeds of barberry can remain in or on the ground and still produce seedlings under favorable conditions?
28. Give details for mapping an escaped area.
29. If you found an almost inaccessible wooded area infested with common barberries what method would you recommend for destroying these bushes?
30. What are the precautions to be taken when surveying stream banks, fence rows, wooded hillsides, wooded pastures, thickets and swampy ground?





31. How far from fruiting bushes should a careful search for seedlings be made?
32. About how much territory can two field assistants cover in one day with a car?

#### Resurvey

33. Discuss the resurvey problem.
  - (a) Should every property, whether city, village, or farm, be revisited and resurveyed?
  - (b) If not, when and why not?
34. What precautions should be taken when resurveying a property on which seedlings and seeding bushes were found on the original survey?
35. Explain in detail the precautions that you would observe in resurveying any area where fruiting bushes but no seedlings had been found. Approximately how many revisits should be made?

#### ERADICATION

36. What methods of eradication have been used in the past?
37. What is the best way to destroy a single bush in a lawn? A small hedge between two city lots?
38. What methods may be applied to large hedges in the country?
39. Recommend methods of eradication for bushes in loose soil, rocky or stony ground, in heavy clay, in underbrush and shrubbery.
40. Describe in detail the method of digging a small bush; a large bush; the use of horses in pulling; the use of tractors.
41. Describe the proper way to attach a chain to a bush when using a crowbar to aid in pulling.

#### Chemical Treatment

42. What are the two chemicals recommended at present for use in destroying common barberries?

If salt is used, how much, what kind, and how applied? Where obtained?



- (a) How much would it be necessary to use on a bush 18 inches across at the surface of the ground?
- (b) Does height have anything to do with amounts used?
- 43. How much salt would you apply to bush of three small stems? How much to a clump of bushes ten feet in diameter?
- 44. Does it make any difference if you let the bush stand or cut it off? What times of year can salt be applied? Is there any danger to live stock or poultry?
- 45. Would the treatment be effective if livestock were allowed to run in the pasture and scatter or eat the salt?
- 46. If a sodium arsenite solution is used, what commercial preparation is recommended? Where obtainable?
- 47. How is the solution made up for application to the bush?
- 48. How much of this solution should be applied to a medium sized bush? How much to a small bush? How much to a clump?
  - (a) How and to what parts of the plant should the solution be applied?
  - (b) Should the whole crown be drenched?
  - (c) What is the effect of arsenical solution on the soil?
  - (d) How long before other plants will be able to grow? Will this cause a loss for a greater period than the continuous digging of sprouts?
- 49. What precautions should be used in mixing and applying this solution?
- 50. Should one use greater precaution than in the mixing of other arsenical sprays for fruit trees or truck crops?
- 51. During what period of growth of the plant should this be applied to be most effective?
- 52. Should these plants be cut down at the time of application. If not, why not?
- 53. To what parts of the plant will the poison be taken?
- 54. What precautions should be taken in regard to the use of berries from a treated bush?
- 55. Would a farm animal be able to eat sufficient foliage to cause death?
- 56. Why should one not wear gloves while handling sodium arsenite solutions?



57. If a person should accidentally drink some of an arsenical solution what antidote should be used? Note. This solution is poisonous, it should not be left in puddles around the bushes. There is no danger after it has been taken up by the soil.
58. If barberries are at the base of a valuable tree, among other ornamental shrubbery, should they be treated?
59. Will these chemicals affect bushes three to five feet from the point of application?
60. Where several bushes are close together must each be treated?
61. What is the probable cost of treating an average-sized bush with salt or arsenical solution?
62. Why may it be cheaper in the long run to kill a bush with chemicals than to dig it?

#### DISTRIBUTION

63. (a) Is the distribution of barberries related in any way to the migration of settlers?  
(b) From and to what part of the United States is this most evident?  
(c) Is the distribution of barberries related to the operations of nursery salesmen?

#### PUBLICITY

64. Name three Federal Department publications dealing with stem rust and barberry eradication, giving their authors and numbers.
65. Name all of your State publications dealing with stem rust and barberry eradication, giving authors and numbers.
66. Prepare a short story that will give the essentials necessary to announce the arrival of a squad of barberry field assistants in a given locality.
67. (a) What type of story or interview should be given for publication? Explain the use of newspaper cuts and cartoons.  
(b) Where would you place posters?



68. (a) With whom should you establish connections when first entering a county to begin a survey.
- (b) Where can you get maps or other information about roads? What business men can be of assistance to you?
- (c) Who do you think would be willing to give space for a window demonstration?
69. What civil officers would it be well to establish diplomatic relations with when beginning work in a town or county?

GENERAL

70. (a) What are the estimated losses from stem rust in your State for each of the past four years?
- (b) For the entire United States?
71. (a) When was the Barberry Eradication Campaign in the United States first started? Name the 13 States cooperating.
- (b) Why are barberries not removed in the South?
- (c) How long since nurserymen in your State discontinued the sale of common barberries?
- (d) If we are trying to eradicate barberries in the 13 North Central States, why do Eastern nurserymen continue to advertise common barberries in catalogs which they distribute in these States?
72. Give the number of plantings and bushes found, number of counties covered, and number to be covered in the survey in your State.
73. In what parts of the eradication area have the greatest number of barberries been found?
74. Give briefly the history of barberry eradication in European countries and the results. (British Isles, France, Germany, Scandinavian countries, Austria, etc.)
75. What are the indications in your State that barberry eradication will control stem rust? In neighboring States?
76. (a) What is a "Barberry Bee"? Under what circumstances would you organize and conduct one?
- (b) Who is the first person to see in making arrangements?





- (c) What organization can help fill up the program for such a gathering?
- (d) What are the two chief reasons for conducting a "Barberry Bee"?
- 77. (a) What authority has a Federal field man to enter upon and inspect property for barberries?
- (b) Under whose authority can barberries be removed?
- 78. (a) What is the status of enforcement of barberry eradication in your State?
- (b) Where and of whom do you ask assistance?
- 79. What is the Conference for the Prevention of Grain Rust?  
What is its purpose? Where are its offices? Who is the representative of the U. S. Department of Agriculture located there?
- 80. Who are the following men, what is their connection with barberry eradication, and what are their addresses?
  - (a) Hon. H. C. Wallace  
Dr. W. A. Taylor  
Dr. C. R. Ball  
Dr. H. B. Humphrey  
Dr. E. C. Stokman  
Dr. F. E. Kempton  
N. F. Thompson  
M. N. Levine  
Harrison Fuller  
Donald G. Fletcher
  - (b) To what office should all correspondence relative to barberry eradication be addressed?
- 81. How would you answer John Jones, a Sand County farmer, who stated that the barberry field assistants found a hedge of common barberry next to his wheat field this year and the stem rust was no worse in his field than in other wheat fields in the same neighborhood?
- 82. (a) Explain why barberry bushes in close proximity to a grain field are heavily rusted, but there is no rust on the grain.
- (b) A farmer says he has not observed any rust since 1916; have you reasons to believe his statement correct and why?
- 83. What are you going to say to a farmer when he says: "Yes, I had that rust, 'cause when we harvested we could hardly see the binder".
  - (a) Suppose he says the crop was oats and the dust reddish?
  - (b) Suppose he says the crop was wheat and the dust reddish?



84. Suppose John Jones says that he observed a great deal of black stem rust in your State long before any barberries were growing; how are you going to answer him?
85. What are you going to say when the property owner says there is no grain grown around here, so why take out the barberries?
86. Outline the steps necessary to prove to a doubting farmer that common barberry is responsible for the initial spread of stem rust in the North-Central grain-growing States.
87. What statement will you make when a housewife asks you if you are going to replace the barberries you wish to have removed?
88. Why could not an owner agree to spray his barberry plants and thus prevent the possibility of an infection?
89. If an educational institution or experimental farm asked permission to retain varieties of barberry which are susceptible to *Puccinia graminis*, what action should be taken?
90. How would you make your explanation of the development of stem rust agree with the statement that hot muggy weather after several cool dewy nights causes wheat to rust?
91. By means of a drawing locate the northwest quarter of the northeast quarter of the southwest quarter of Section Six. How many acres in a quarter of a section?
92. How many square miles in a township? How many sections?
93. What is the average number of townships in a county.
94. Discuss fully the responsibilities which a field man has to the institutions (Federal and State) which he represents relative to his conduct, thoroughness, honesty, friendliness and sincerity.



RELATED PLANT DISEASE QUESTIONS THAT EVERY MAN IN  
BARBERRY ERADICATION SHOULD BE ABLE TO ANSWER FULLY

1. Name and give distinguishing characteristics of the principal cereal diseases occurring in your State. Give latest approved control measures.
2. What are the dangers in the use of concentrated formaldehyde method with wheat.
3. What is Bordeaux mixture? How made? For what type of disease used?
4. What is lime sulphur? For what plant diseases used?
5. Give the methods of potato seed treatment recommended in your State.
6. Give the life cycle, means of identification, and control for cedar-apple rust?
7. Give the life cycle, means of identification, and control for white pine blister rust.
8. (a) Give sprays recommended for the control of mildews on roses?  
(b) Give sprays or dusts recommended for the control of insects on rose bushes and such garden plants as tomatoes, squash, cucumbers and potatoes.
9. Name the hosts of fireblight. How is it controlled?
10. What shrubs may be used to replace common and purple leafed varieties of barberry?
11. What is the annual production of each cereal in your State?



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